

REMARKS

In the Office Action, the Examiner allowed claims 4, 13, 21 and 37 and objected to claims 3, 12 and 20 as being dependent upon a rejected base claim, but indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 1, 2, 5-11, 14-19, 22-36 and 38-47 are rejected. Claims 1-47 are pending.

Applicants acknowledge and appreciate that the Examiner has reviewed Applicants' previous arguments and have deemed them persuasive; however, in light of the new grounds of rejection, the Examiner has withheld the rejections.

The Examiner rejected claims 1, 5-10, 11, 14-19 and 22-36 under 35 U.S.C. 103(a) as being unpatentable over *Marinaro* (US 6,051,348) and further in view of *Kiba* (US 3,620,795). Applicants respectfully traverse this rejection.

Applicants respectfully assert that claims of the present invention are not taught, disclosed or made obvious by *Marinaro*, *Kiba*, nor their combination. For example, claim 1 is directed to a text structure that includes a plurality of intersecting lines that define a grid, having openings on a wafer. Claim 1 also calls for illuminating at least a portion of the grid with a light source and measuring the reflective light from the illumination portion of the grid to generate a reflection profile. The dimension of the grid of claim 1 is determined based upon the reflection profile. There are various elements that are not disclosed or made obvious by *Marinaro*; further, *Kiba* does not make up for this deficit.

The Examiner admits that *Marinaro* does not explicitly disclose that the grid pattern has openings. The Examiner then argues that since *Marinaro* discloses a positive photoresist

process, it would be allegedly obvious that the grid patterns would have openings because the regions between the intersecting lines would dissolve away. This argument does not support an assertion of obviousness of providing the grid pattern openings as called for by claim 1 of the present invention. In fact, the grid that is called for in claim 1 having openings is provided to measure reflected light from the illuminated portion of the grid to generate a reflection profile. The argument that eventually grid patterns would have openings because of the possibility of dissolving away during development does not support the obviousness argument of using grids having openings to generate a reflection profile, as called for by claim 1 of the present application. Therefore, the Examiner's argument to assert obviousness of this element (of claim 1) using Marinaro and/or Kiba is not persuasive since claims of the present invention explicitly call for grid having openings and using reflected light from a portion of the grid to generate a reflection profile. This concept is not anticipated or made obvious by the cited prior art. Therefore, this element of claim 1 is clearly not taught or made obvious by Marinaro and/or Kiba.

[[global: BOLD AND ITALICIZE Marinaro nor Kiba]]

Further, neither Marinaro nor Kiba provide disclosure that would make obvious the element of measuring light reflected from the illuminated portion of the grid to generate a reflection profile. The Examiner cited the disclosure in Marinaro that refers to a digital image of the wafer being created. Marinaro discloses that the wafer is oriented to cause diffraction of reflected light, and a digital image of the wafer is created using an optoelectronic scanner. *See* column 5, lines 30-35. Marinaro does not make obvious a reflection profile, which is a profile of the reflection itself. Marinaro is directed to providing for a digital image of the wafer.

Therefore, yet another element of claim 1 is not taught, disclosed or suggested by Marinaro, and Kiba does not make up for this deficit.

Further, the Examiner admitted that Marinaro does not disclose that a dimension of the grid is determined based upon the reflection profile, as called for by claim 1 of the present invention. This is indeed correct, and further, neither Marinaro, Kiba, nor their combination makes this element obvious. The Examiner suggests that since Marinaro discloses that the dimensions are determined for abnormalities, such as unevenness or abnormalities of images, the element relating to the dimensions of the grid would be made allegedly obvious. The Examiner provides no evidence or arguments to support this assertion other than mere conclusory statements. Clearly, Marinaro does not promote acquiring any type of a dimension information. The mere determination of abnormalities based upon the fraction of reflected light does not make obvious the determination of the dimensions of a grid, as called for by claim 1 of the present invention.

Further, Marinaro actually teaches away from determining any type of a dimension. In the Background Section of Marinaro, it is disclosed that “feature characteristics” on a wafer are examined using an optical microscope, and that these characteristics may include line width, spacing, contact dimensions, and other factors. *See* column 2, lines 28-33. Marinaro asserts that this type of an inspection method is complicated, time consuming and requires elaborate and expensive equipment, thereby, discouraging acquiring dimension measurement. Marinaro also asserts that it is a difficult task to determine the actual cause of an off-tolerance condition. *See* column 2, lines 40-45. Therefore, Marinaro actually teaches away from any type of a determination of a dimension since Marinaro describes this process as being too time consuming and expensive. Therefore, one cannot reasonably assert that Marinaro makes obvious

determining a dimension of the grid when not only is a lack of disclosure to support this assertion in the cited prior art, but also because Marinaro explicitly discourages any type of a dimension determination. Therefore, this is yet another element that is not taught, disclosed or suggested by Marinaro, Kiba, nor their combination.

Kiba does not make up for the deficit of Marinaro. Kiba is merely directed to creating a mask for use in semiconductor device processing. Kiba discloses that material, such as copper and gas formations, is diffused into a glass substrate to convert a copper oxide to elemental copper to provide a red color center that gives a stain in the glass of characteristic red color. *See* color 4, lines 41-49. Kiba discloses that after the substrate has been treated for a sufficient time in a furnace, it is moved and cooled to form a mask ready for the formation of semiconductor devices. *See* column 4, lines 49-54. Kiba is directed to generating a mask. The color gradients and patterns in Kiba does not make obvious any of the elements of claim 1 of the present invention.

Additionally, without using improper hindsight reasoning, those skilled in the art would not be motivated to combine Kiba and Marinaro to make obvious any or all of the elements of claims 1 of the present invention. Simply because they both are remotely connected to semiconductor manufacturing does not support a contention that those skilled in the art would combine them to make obvious all of the elements of claim 1 of the present invention. In fact, the cited prior art are directed to different aspects of manufacturing. Kiba is directed to creating a mask that may be used for performing semiconductor processing. In contrast, Marinaro is directed to obtaining reflected light from a wafer being processed to check for errors. These are different prior art referenced that are directed to different task. Without improper hindsight

reasoning, those skilled in the art would not combine them to make obvious all of the elements of claims of the present invention.

Accordingly, there is not sufficient motivation within the cited prior art to cause those skilled in the art to combine Marinaro and Kiba to make obvious any of the claims of the present invention. Further, there is no expectation of success, and the Examiner provides no evidence to support an expectation of success in combining the cited prior art. Further, as described above, even if the cited prior art were combined, all of the elements of claim 1 are not taught, disclosed or suggested by Marinaro. Accordingly, the Examiner failed to show all three prongs required to provide a *prima facie* evidence of obviousness of any claim of the present invention. Accordingly, claim 1 of the present invention is allowable.

Further, claim 2 of the present invention also calls for determining dimension of a grid based on a reflection profile and for at least the reasons cited above is not taught, disclosed or made obvious by the cited prior art. Further, claims 6, 11, 15, 19, 23 also includes elements relating to determining dimension of a grid based on a reflection profile and for at least the reasons cited above is not taught, disclosed or made obvious by the cited prior art. Further, claims 27, 32, 38, and 40 call for elements relating to a data processing unit adapted to determine a dimension of a grid based upon a reflection profile, which, for at least the reasons described above, is not taught, disclosed or suggested by the cited prior art. Contrary to Examiner's assertion Claim 42 is not taught, disclosed or made obvious by Marinaro since it does not make obvious a plurality of lines defining a grid that have openings, as described above. Claims 45, 46 and 47 call for means for determining a dimension of the grid, and for at least the reasons cited above, are not taught, disclosed or suggested by the cited prior art.

For at least the reasons cited above, independent claims 1, 2, 6, 11, 15, 19, 23, 27, 32, 38, 40, 45, 46, and 47 are allowable for at least the reasons cited above. Further, dependent claims 5, 7-10, which depend from independent claim 1; claims 12, 14, 16-18, which depend from independent claim 11; claims 20, 22, 24-26, which depend from independent claim 19; claims 28-31, which depend from independent claim 27; claims 33-36 and 39, which depend from independent claim 32; claims 43-44, which depend from independent claim 42; and claim 45, which depends from independent claim 45, are also allowable for at least the reasons cited herein.

Applicants acknowledge and appreciate that the Examiner has allowed claims 4, 13, 21 and 37. Applicants also acknowledge and appreciate that the Examiner has indicated that claims 3, 12, and 20 contain allowable subject matter. However, in light of the discussions provided herein, Applicants respectfully assert that all claims, 1-47, of the present invention, are allowable for at least the reasons cited herein. Reconsideration of the present application is respectfully requested.

In light of the arguments presented above, Applicants respectfully assert that claims 1-47 are allowable. In light of the arguments presented above, a Notice of Allowance is respectfully solicited.

In view of the remarks set forth herein, the application is believed to be in condition for allowance and notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephonic interview, the **Examiner is requested to contact the undersigned attorney at (713) 934-4069** with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,
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